

STC-1 Micro RTU

User Manual (V1.5)



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Figure 3	错误!未定义书签。
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1. Introduction

1.1. Specification

- 8 Channel Analog Input
- 8 One Form A Relay output
- 8 photo-coupler isolated digit input with SOE and Counter
- 1 RS485 or RS232(3 wire) ,1 RS485
- Modbus RTU

1.2. Parameters

1.2.1. Analog input

- ◆ 8 Channel Analog Input
- ◆ 0~5v or 0~20mA (use jumper to select)
- ◆ Input resistance 0~5v 170kΩ 0~20mA 250Ω
- ◆ 12bit A/D
- ◆ 0.2% FS ± 2digit

1.2.2. Digit Input

- ◆ 8 Channel Digit Input
- ◆ Photo-coupler Isolated
- ◆ Dry contacts
- ◆ Commons: all Negative
- ◆ DC 12v~48V Input Voltage :
- ◆ 20kΩ Input resistance
- ◆ SOE with 1ms resolving
- ◆ Pulse Counter with 32BIT
- ◆ 1KHz Maximum Counter Frequency

1.2.3. Relay Output

- ◆ 8 Channel Relay Output

- ◆ One Form A (SPST)
- ◆ 250V/5A AC Contact Capacity
- ◆ Relay Contacts Directly connect to IO terminals

1.2.4. Communication

- ◆ 1 RS485 or RS232(3 wire) ,1 RS485
- ◆ Modbus RTU
- ◆ Max baud rate 38400bps
- ◆ Address Setting: DIP SW 1~31

1.3. Operation Condition

- ◆ Operating temperature: -20°C ~ 70°C
- ◆ Storage temperature: -40~85°C
- ◆ Operating humidity: <85% RH (20±5°C)
- ◆ atmospheric: 86~108Kpa
No corrosive gas or heavy dust
- ◆ Weight: 450g
- ◆ Input/Output M3 screw terminals
- ◆ Mounting: Surface or DIN rail
- ◆ Size: 145×90×70 mm
- ◆ Power Supply: AC 85~265V 40HZ~65HZ
OR DC 24 v OR DC12V
- ◆ Power Consumption: < 3W
- ◆ Ingress Protection IP30

2. MODBUS

Detail Ref: <http://wwwmodbus.org>

The STC-1 Micro RTU Only support a Part Function of Modbus Protocol

Supported Function Code

- 01 READ COIL STATUS
- 02 READ INPUT STATUS
- 03 READ HOLDING REGISTERS
- 04 READ INPUT REGISTERS
- 05 FORCE SINGLE COIL
- 06 PRESET SINGLE REGISTERS
- 24 READ FIFO QUEUE

2.1. Coils Status

Modbus address	function	description
00001	Relay 1 Control	=1 on =0 off
00002	Relay 2 Control	=1 on =0 off
00003	Relay 3 Control	=1 on =0 off
00004	Relay 4 Control	=1 on =0 off
00005	Relay 5 Control	=1 on =0 off
00006	Relay 6 Control	=1 on =0 off
00007	Relay 7 Control	=1 on =0 off
00008	Relay 8 Control	=1 on =0 off

Use 05 Function FORCE SINGLE COIL to change the Coil Status

2.2. Input Status

Modbus address	function	description
10001	Input 1 Status	=1 power on =0 power off
10002	Input 2 Status	=1 power on =0 power off

10003	Input 3 Status	=1 power on	=0 power off
10004	Input 4 Status	=1 power on	=0 power off
10005	Input 5 Status	=1 power on	=0 power off
10006	Input 6 Status	=1 power on	=0 power off
10007	Input 7 Status	=1 power on	=0 power off
10008	Input 8 Status	=1 power on	=0 power off

2.3. Holding Register

Modbus address	function	description
40001	System 32BIT timer Low 16Bit	The 32 bit timer is increased every 1ms, it can be modified .This timer is used for SOE time
40002	System 32BIT timer High 16 bit	
40003	Channel 1 32bit Counter Low 16bit	Increased every pulse
40004	Channel 1 32bit Counter High 16bit	Increased every 65536 pulse
40005	Channel 2 32bit Counter Low 16bit	Increased every pulse
40006	Channel 2 32bit Counter High 16bit	Increased every 65536 pulse
40007	Channel 3 32bit Counter Low 16bit	Increased every pulse
40008	Channel 3 32bit Counter High 16bit	Increased every 65536 pulse
40009	Channel 4 32bit Counter Low 16bit	Increased every pulse
40010	Channel 4 32bit Counter High 16bit	Increased every 65536 pulse
40011	Channel 5 32bit Counter Low 16bit	Increased every pulse

40012	Channel 5 32bit Counter High 16bit	Increased every 65536 pulse
40013	Channel 6 32bit Counter Low 16bit	Increased every pulse
40014	Channel 6 32bit Counter High 16bit	Increased every 65536 pulse
40015	Channel 7 32bit Counter Low 16bit	Increased every pulse
40016	Channel 7 32bit Counter High 16bit	Increased every 65536 pulse
40017	Channel 8 32bit Counter Low 16bit	Increased every pulse
40018	Channel 8 32bit Counter High 16bit	Increased every 65536 pulse
40019	SIO1 delay time Set	Unit: 1ms
40020	SIO2 delay time Set	Unit: 1ms
40021	SIO1 Set	
40022	SIO2 Set	
40023 ~40041	reserved	
40042	Frequency Measure Gate Time	Unit: 1ms

Use 06 Function PRESET SINGLE REGISTERS to modify the value of Holding Register. The Value of Holding Register is Non-Volatile .

2.4. Input Register

Modbus address	function	description
30001	Analog channle1 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30002	Analog channle2 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30003	Analog channle3 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30004	Analog channle4 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30005	Analog channle5 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30006	Analog channle6 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30007	Analog channle7 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30008	Analog channle8 input value	16 bit unsigned 5000 is full scale 5V or 20mA
30009	reserved	
30010	reserved	
30011	Digit input channel 1 frequency	16bit unsigned (the pulse in the gate time)
30012	Digit input channel 2 frequency	16bit unsigned (the pulse in the gate time)
30013	Digit input channel 3 frequency	16bit unsigned (the pulse in the gate time)
30014	Digit input channel 4 frequency	16bit unsigned (the pulse in the gate time)
30015	Digit input channel 5 frequency	16bit unsigned (the pulse in the gate time)
30016	Digit input channel 6	16bit unsigned

	frequency	(the pulse in the gate time)
30017	Digit input channel 7 frequency	16bit unsigned (the pulse in the gate time)
30018	Digit input channel 8 frequency	16bit unsigned (the pulse in the gate time)

2.5. FIFO

The FIFO is used for SOE

READ

XX 18 00 00 CRC (xx Modbus Address)

Response

XX 18 By Te Fi FO data CRC

By Te is byte counter of followed response

Fi FO is the counter of followed fifo

Data is the content of fifo

Data is consist of 8 byte,

Byte0(H) byte1(L) is one 16BIT integer ,the content is SOE action point

=0 is the first digit input changed =2 is the third digit input changed

Byte2(H),Byte3(L) is one 16BIT integer, the content is SOE attribute,

=0 is the input act as 1-→0

=1 is the input act as 0-→1

Byte4(H),Byte5, Byte6 , Byte7 (L) is one 32 bit integer, the act time

3. Install

3.1. Mounting

3.1.1. Surface Mounting

Attach to the Mounting surface by 4 M4 screw .

3.1.2. DIN rail

Fasten to DIN rail by two red clips.

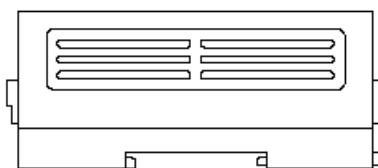
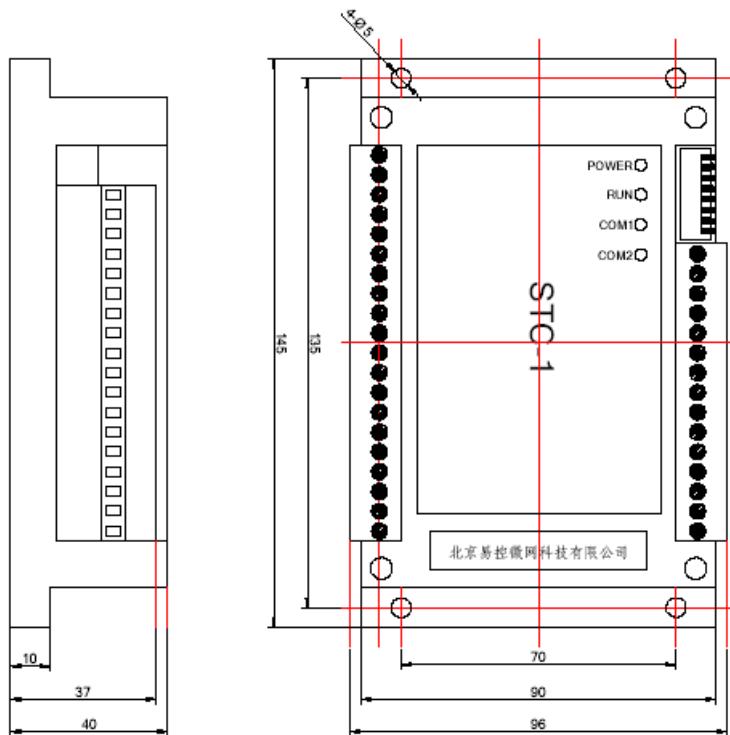


Figure 1

3.2. Connect Terminals

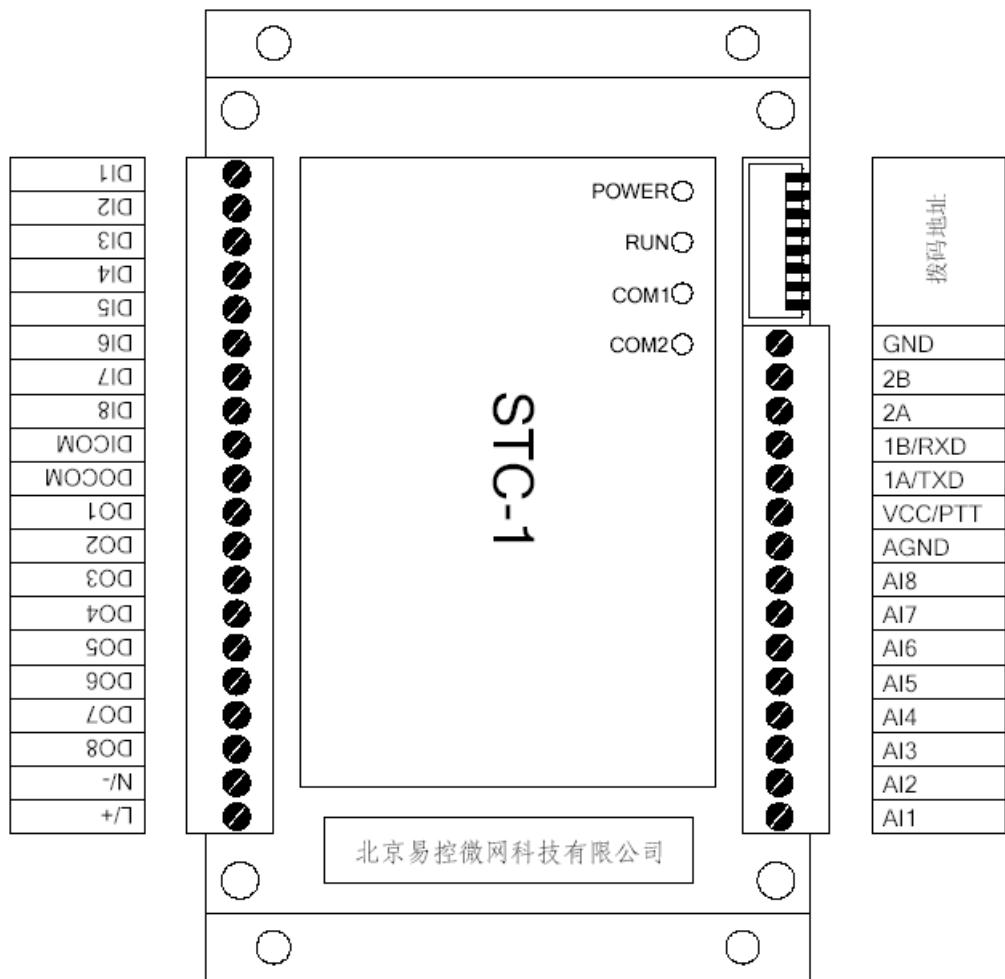
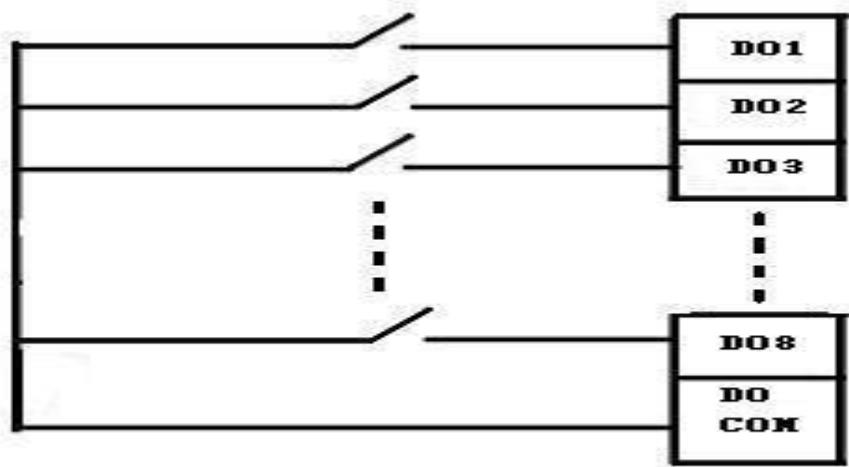


Figure 2

3.2.1. Relay output

The relay output connection is according to your usage. There are 8 relays in the device. As figure 2.

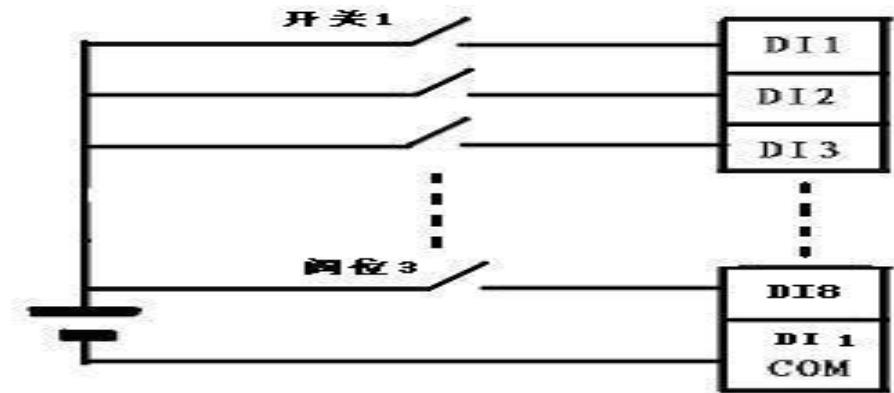
The inner contact is show as below



The contacts directly connect to the terminals.

3.2.2. Digit Input

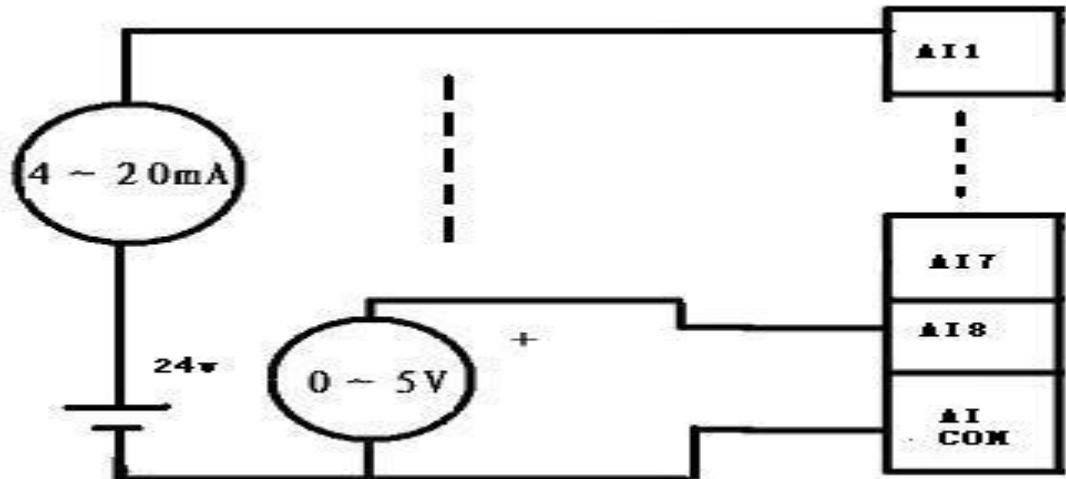
The Digit Input can use as below



3.2.3. Analog Input

Analog input can use 0~5v or 0~20mA, Select by inner jumper, it can be used as below.

Use 0~20mA or 0~5v must be determined on sign the contract.



3.2.4. Power

The device power supply is AC 85V~265V , DC110~220V . A alternative is DC24V 10%

Connect L N when use AC power

Connect to + - when use DC Power.

When use DC 24V must be determined on sign the contract.

3.2.5. RS232 RS485

The device have tow Serial Port

One(SIO1) can be configure as RS232 or RS485 , must be determined on sign the contract.. One(SIO2) is only RS485

SIO1 When use as RS232 ,only three wire **GND,TXD,RXD** ,as RS485 only two wire **2A 2B**.

The RS485 Can drive 500m shield twist pair cable.

All the SIO support modbus RTU Protocol.

3.2.6. MODBUS Address

Modbus Address can be set by DIP SW , when a SW is on ,the corresponding bit is 0, or is 1. The sw marked 1 is LSB ,only 5 SW is

available. The address can be 1~31.

3.2.7. LED

The device with four LEDS, named **POWER,RUN,COM1,COM2**

Power , Green , Lightened when Power on

RUN Green Flashed on working properly

COM1 Orange Flashed on SIO1 Communication

COM2 Orange Flashed on SIO2 Communication